

University of Groningen

## Investigating admitted patients' satisfaction with nursing care at Debre Berhan Referral Hospital in Ethiopia

Sharew, Nigussie Tadesse; Bizuneh, Hailegiorgis Teklegiorgis; Assefa, Hilina Ketema; Habtewold, Tesfa Dejenie

*Published in:*  
BMJ Open

*DOI:*  
[10.1136/bmjopen-2017-021107](https://doi.org/10.1136/bmjopen-2017-021107)

**IMPORTANT NOTE:** You are advised to consult the publisher's version (publisher's PDF) if you wish to cite from it. Please check the document version below.

*Document Version*  
Publisher's PDF, also known as Version of record

*Publication date:*  
2018

[Link to publication in University of Groningen/UMCG research database](#)

### *Citation for published version (APA):*

Sharew, N. T., Bizuneh, H. T., Assefa, H. K., & Habtewold, T. D. (2018). Investigating admitted patients' satisfaction with nursing care at Debre Berhan Referral Hospital in Ethiopia: a cross-sectional study. *BMJ Open*, 8(5), [e021107]. <https://doi.org/10.1136/bmjopen-2017-021107>

### **Copyright**

Other than for strictly personal use, it is not permitted to download or to forward/distribute the text or part of it without the consent of the author(s) and/or copyright holder(s), unless the work is under an open content license (like Creative Commons).

The publication may also be distributed here under the terms of Article 25fa of the Dutch Copyright Act, indicated by the "Taverne" license. More information can be found on the University of Groningen website: <https://www.rug.nl/library/open-access/self-archiving-pure/taverne-amendment>.

### **Take-down policy**

If you believe that this document breaches copyright please contact us providing details, and we will remove access to the work immediately and investigate your claim.

Downloaded from the University of Groningen/UMCG research database (Pure): <http://www.rug.nl/research/portal>. For technical reasons the number of authors shown on this cover page is limited to 10 maximum.

# BMJ Open Investigating admitted patients' satisfaction with nursing care at Debre Berhan Referral Hospital in Ethiopia: a cross-sectional study

Nigussie Tadesse Sharew,<sup>1</sup> Hailegiorgis Teklegiorgis Bizuneh,<sup>1,2</sup> Hilina Ketema Assefa,<sup>1</sup> Tesfa Dejenie Habtewold<sup>1,3</sup>

**To cite:** Sharew NT, Bizuneh HT, Assefa HK, *et al.* Investigating admitted patients' satisfaction with nursing care at Debre Berhan Referral Hospital in Ethiopia: a cross-sectional study. *BMJ Open* 2018;**8**:e021107. doi:10.1136/bmjopen-2017-021107

► Prepublication history for this paper is available online. To view these files, please visit the journal online (<http://dx.doi.org/10.1136/bmjopen-2017-021107>).

NTS and HTB contributed equally.

Received 12 December 2017  
Revised 23 April 2018  
Accepted 27 April 2018



<sup>1</sup>Department of Nursing, Debre Berhan University, Debre Berhan, Ethiopia

<sup>2</sup>CJW Medical Center, Richmond, Virginia, USA

<sup>3</sup>Department of Epidemiology and Psychiatry, University of Groningen, University Medical Center Groningen, Groningen, The Netherlands

## Correspondence to

Tesfa Dejenie Habtewold;  
tesfajade2003@gmail.com

## ABSTRACT

**Objectives** The aims of the study were (1) to assess the level of patient satisfaction with nursing care and (2) to identify factors influencing patient satisfaction.

**Design** A hospital-based, cross-sectional study was conducted with 252 admitted patients in the medical, surgical and paediatric wards.

**Setting** Debre Berhan Referral Hospital, Debre Berhan, Ethiopia, with a catchment population of 2.8 million.

**Participants** All patients admitted at least for 2 days and capable of independent communication were included. However, patients were excluded on any one of the following conditions: admitted for less than 2 days, cannot understand Amharic language, with critical illness or cognitive impairment that affects judgement, or inability to provide written informed consent. The mean age of the patients was 37.9 (SD=12.9) years, and half (50.4%) of them were male.

**Primary outcome measure** Patient satisfaction with nursing care, measured by the Newcastle Satisfaction with Nursing Scale, was the outcome variable. Using a mean split approach, patient satisfaction scores were dichotomised into 'satisfied' and 'unsatisfied'.

**Results** 49.2% of patients were satisfied with nursing care. Educational status and history of admission were significant factors influencing patient satisfaction with nursing care. Patients who had high educational status were 80% less satisfied compared with those who had no formal education ( $p=0.01$ , OR=0.2, 95% CI 0.1 to 0.7). Patients who had a history of admission were 2.2 times more satisfied compared with those who had no history of admission ( $p=0.02$ , OR=2.2, 95% CI 1.2 to 4.2).

**Conclusions** About half the admitted patients were satisfied with the nursing care. Satisfaction differed significantly by patients' educational attainment and history of admission. This study provided evidence on patient satisfaction with nursing care in Ethiopia. This information may be useful in comparative studies of patient satisfaction and in identifying characteristics that may explain or predict patient satisfaction.

## BACKGROUND

Satisfaction is a belief and an expression of attitude about a particular service process.<sup>1</sup> It has three major components: emotional

## Strengths and limitations of this study

- The study used a standardised patient satisfaction scale.
- The study has a reasonably large sample size.
- The patient satisfaction scale has not been validated in an Ethiopian context.
- There is social desirability bias because patients may feel hesitant to provide feedback that may negatively affect their relationship with hospital staff.
- Potentially relevant variables such as medical diagnosis, severity and duration of illness, and medication history were not included.

or cognitive response; expectations, product and consumption experience; and experience-based response after consumption and choice.<sup>2</sup> Patient satisfaction is defined as the patient's subjective evaluation of his/her cognitive and emotional reaction as a result of the interaction between expectations and perception of actual care.<sup>3</sup> Patient satisfaction has become an established outcome indicator, a tool to analyse the quality of a healthcare system,<sup>4</sup> and input to develop strategies for accessible, sustainable, affordable and acceptable patient care.<sup>1</sup>

Risser's<sup>5</sup> first proposed definition of patient satisfaction is the degree of congruence between a patient's expectation of ideal nursing care and their perception of the actual nursing care received. The American Nurses Association's definition of patient satisfaction with nursing, the patient's opinion of care received from nurses during their hospitalisation, is adapted for our study.<sup>6</sup> Patient satisfaction with nursing care has the following components: expectation, hospital physical environment, communication and information, participation and involvement, interpersonal relations, and competence.<sup>7</sup> Since nurses spend most of their time with patients,

they have a great role in determining overall patient satisfaction.<sup>8 9</sup> In addition, nurses provide up to 80% of primary healthcare.<sup>10</sup> Thus, dissatisfaction with the nursing care may indicate poor healthcare quality and decreases the achievement of standards.<sup>4 11</sup>

A review of literature shows variability in the per cent of patients reporting satisfaction with nursing care: 73% in India,<sup>12</sup> 51.7% in Serbia,<sup>13</sup> 57.8% in the Philippines,<sup>8</sup> 54.8% in Turkey<sup>14</sup> and 82.7% in Malaysia.<sup>15</sup> In Ethiopia, patient satisfaction with nursing care is 67% at Black Lion Hospital,<sup>16</sup> 81.8% at Felege Hiwot Referral Hospital and Finote Selam Hospital,<sup>17</sup> and 56.9% at Debre Markos Hospital.<sup>18</sup> Factors influencing patients' satisfaction with nursing care are age, gender, educational status and the healthcare system.<sup>7</sup> A study conducted in South Africa and China also reveals an association between patients' satisfaction with nursing care and occupation, methods of payment, admission ward and severity of illness.<sup>19 20</sup> Furthermore, monthly family income,<sup>21</sup> nature of care provided,<sup>22–24</sup> maintaining dignity and privacy,<sup>25 26</sup> and emotional support and empathy<sup>27</sup> were significant factors influencing patient satisfaction with nursing care. On the contrary, recent studies depict the absence of a significant association between patient satisfaction with nursing care and patients' sociodemographic characteristics (age, gender, educational status), nursing competence, skill mix, clinical experience, nurse to patient ratio and number of beds.<sup>28–31</sup>

Patient satisfaction is low in Sub-Saharan Africa due to the following reasons: inadequate nurse to population ratio, inadequate competency, scarcity of resources and ineffective healthcare system.<sup>32 33</sup> The World Bank study group in Ethiopia reported that the ratio of healthcare workers to the population is 0.84 per 1000 population. Even though Ethiopia has the highest number of healthcare workers in Sub-Saharan Africa (65 554), the ratio of healthcare workers to the population is below the WHO standard of 2.28 per 1000 population.<sup>34</sup> The total number of nurses in Ethiopia is 20 109 (0.26 nurse per 1000 population), with nurses representing the second largest group of healthcare workers.<sup>33</sup> Despite the greatest inadequacy for physicians (1 per 42 706 population), the number of other health professionals, such as health officers, nurses, midwives and health extension workers, has shown a dramatic improvement over the past 5 years. Ethiopia has also achieved the minimum WHO recommendation of 1 nurse per 5000 population.<sup>35</sup> Currently, the Ethiopian government has been implementing the nursing process and training nurses in different specialties (eg, medical nursing, surgical nursing, neonatal nursing, emergency nursing, family nursing). In Ethiopia, nursing education has made a substantial progress; the Ministry of Health and the Ministry of Education proposed the baccalaureate degree as the minimum educational requirement for professional nursing practitioners. Nurses can also earn master's degrees and doctoral degrees (PhD) in national or international universities. Nurses in Ethiopia engage

in a variety of tasks, including nursing care, teaching, research and management.<sup>36</sup>

Reviewed literature shows that evidence on the level of patient satisfaction with nursing care and factors influencing satisfaction is mixed across countries.<sup>3 37–39</sup> The possible explanations for the differences could be variations in sample size, the operationalisation of patient satisfaction, methodological variation (eg, use of culturally validated satisfaction scales), and the difference in cultural beliefs and values. Thus, country-specific data are still required to provide evidence for cross-country and cross-cultural comparisons in satisfaction level and factors affecting satisfaction using a standardised tool.<sup>32</sup> To our knowledge, this is the first study at Debre Berhan Referral Hospital (DBRH). This study has two aims: (1) to assess the level of patient satisfaction with nursing care and (2) to examine the influence of factors affecting patient satisfaction with nursing care.

## METHODS AND MATERIALS

### Study setting

Debre Berhan is located 130 km north-east of Addis Ababa, which is the capital city of Ethiopia. It has nine kebeles (the smallest administrative unit in Ethiopia) with a total population of 94 829 individuals, 50.8% of whom are female. In Debre Berhan, two hospitals, three health centres and seventeen private clinics provide healthcare services.<sup>40</sup> This study was conducted at DBRH, a 150-bed facility with a catchment population of 2.8 million people.<sup>41</sup> The services at DBRH include ear, nose and throat, surgery, outpatients department, emergency, tuberculosis and HIV, gynaecology and obstetrics, paediatrics and neonatal intensive care unit (NICU), maternal and child health, physiotherapy, dental, radiology, psychiatry, and internal medicine. Even though DBRH is not affiliated with any of the teaching colleges or universities, it is a teaching hospital for nursing, health officer, medicine, midwifery and pharmacy undergraduate and graduate students. The hospital has a total of 334 healthcare employees: 38 physicians, 180 nurses, 26 midwives, 7 anaesthetists, 31 laboratory technicians, 2 physiotherapists, 4 dentists, 6 radiographers, 4 optometrists and 36 pharmacists.<sup>42</sup> The types of nurses in DBRH are NICU nurses, surgical nurses, paediatrics nurses, operation room nurses, emergency nurses and psychiatry nurses. The hospital has implemented nursing process since 2010.

### Patient and public involvement

The research question and outcome measures were developed by the authors (NTS and HKA) in consultation with ward nurses who understand patients' priorities, experiences and preferences. Patients were involved in the design of this study via their advisers (ward nurses) and were directly recruited and interviewed by the authors to evaluate their level of satisfaction with nursing care. The results of this study will be disseminated to patients by

means of health education and by relaying the key findings in Amharic, the local language.

### Study design and sampling

This hospital-based, cross-sectional study was conducted with 252 admitted patients between April and May of 2015. All patients admitted in the selected wards at least for 2 days and capable of independent communication were included. However, patients were excluded on any one of the following conditions: admitted for less than 2 days, cannot understand Amharic language, with critical illness or cognitive impairment that affects judgement, or inability to provide written informed consent. The required sample size was determined using a single population proportion formula using the following assumptions: 95% confidence level, 5% level of statistical significance, 81.8% patient satisfaction with nursing care<sup>17</sup> and 10% non-response rate. First, considering the number of patients admitted and the implementation of the nursing process, medical, surgical and paediatric wards were purposefully selected. Second, based on the calculated sample size, the required number of patients from each ward was proportionally allocated. Finally, a quota random sampling method was used to select an individual patient.

### Measurements and instruments

The questionnaire included sociodemographic characteristics (eg, age, sex, religion, occupational status, educational status, marital status and monthly family income), history of admission (eg, having been admitted previously to DBRH for the same or different condition), hospital length of stay, admission ward, satisfaction with overall ward services and the Newcastle Satisfaction with Nursing Scale (NSNS) to measure satisfaction with nursing care. The American Nurses Association's definition was used to conceptualise patient satisfaction with nursing care.<sup>6</sup> Satisfaction with overall ward services was assessed using a single item: 'How would you rate your satisfaction with the overall service given in this ward?' Trained nursing student interns approached patients during their hospital stay for recruitment. Written informed consent was obtained after explaining the objectives of the study. Five trained nursing student interns administered the questionnaire in Amharic, the local language; translation into the local language was done in consultation with professionals fluent in English and Amharic. In the paediatric ward, parents or guardians were interviewed. A private room at the hospital was used to interview patients, as it was believed to provide privacy and aid in the attainment of honest responses from the participants. Family members were present during some of the interviews at the request of some patients. In addition, medical records were reviewed for certain variables such as hospital length of stay and history of admission. The NSNS comprised two subscales: experiences of nursing care and satisfaction of care. In the current study, only the satisfaction of care subscale<sup>43</sup> was used because of feasibility issue. The

satisfaction subscale assesses satisfaction with all aspects of nursing care using 19 items rated on a 5-point Likert scale (not at all satisfied, barely satisfied, quite satisfied, very satisfied, completely satisfied). The NSNS tool had an excellent reliability (Cronbach's  $\alpha=0.96$ ) and construct validity.<sup>43 44</sup> In our study, the NSNS tool had an excellent reliability with a Cronbach's  $\alpha$  of 0.98 and intraclass correlation of 0.97. A satisfaction sum score for each patient and the mean (ie, 63.9) were calculated. The satisfaction score was standardised by dividing the mean value by the number of the NSNS items (ie, 3.36). A mean split approach (ie, using the mean satisfaction score as a cut point) was used to dichotomise satisfaction into 'satisfied' (ie, satisfaction score  $\geq 63.9$ ) and 'not satisfied' (ie, satisfaction score  $< 63.9$ ). We dichotomised the satisfaction score to ease translation into clinical practice. In addition, we believe there are distinct groups of patients as we were interested in group differences rather than individual differences.<sup>45</sup>

### Statistical analysis

The printed frequency was used to check accuracy, consistency and missed values of variables. Bivariate and multiple logistic regression analyses were done to identify factors associated with satisfaction. The strength of the associations was described using ORs and 95% CI at the 0.05 level of statistical significance. Data were presented using descriptive statement and tables. EPI Info V.3.5.1 statistical software was used for data entry and coding, whereas the Statistical Package for the Social Sciences (SPSS V.20) was used for data analysis. The study was adherent to the Strengthening the Reporting of Observational Studies in Epidemiology statement.<sup>46</sup>

## RESULTS

### Baseline characteristics

A total of 252 admitted patients were interviewed. The patients had a mean age of 37.9 (SD 12.9) years. Half (50.4%) of the patients were male, 61.5% were married, 41.7% were farmers and 36.9% were illiterate. The average length of hospital stay was 6.44 days (SD=4.46). More than three-quarters (79%) of patients knew a nurse in charge of their nursing care (table 1).

### Satisfaction with nursing care

Of the patients, 49.2% were satisfied with nursing care. The average patient satisfaction score was 63.9 (SD=17). Patients' satisfaction with overall ward service was 64.7%. As presented in table 2, about one out of ten admitted patients was not satisfied with their freedom in their ward (8.7%), nurses' willingness to respond to their needs (8.3%), privacy (8.3%) and information provided by nurses (7.9%).

### Factors influencing satisfaction

Educational status and history of admission were significant factors influencing patient satisfaction with nursing



**Table 1** Sociodemographic characteristics and medical history of patients

Variables	Categories	Frequency distribution	NSNS score
		n (%)	Mean (SD)
Sex	Male	127 (50.4)	64.2 (16.2)
	Female	125 (49.6)	63.7 (17.8)
Religion	Christian	216 (85.7)	63.6 (17.5)
	Muslim	36 (14.3)	65.8 (13.9)
Monthly family income (ETB)*	≤600	34 (13.5)	59.3 (20.3)
	601–1200	108 (42.9)	63.8 (14.6)
	1201–2500	89 (35.3)	67.2 (17.1)
	≥2501	21 (8.3)	57.9 (20.0)
Marital status	Single	71 (28.2)	64.3 (16.5)
	Married	155 (61.5)	63.9 (17.6)
	Others	26 (10.3)	62.6 (14.9)
Educational status	No formal education	93 (36.9)	66.2 (15.4)
	Primary school	84 (33.3)	68.2 (15.9)
	Secondary school and preparatory	36 (14.3)	59.1 (18.3)
	Certificate and above	39 (15.5)	53.6 (16.8)
Occupational status	Farmer	105 (41.7)	65.8 (17.3)
	Civil servant	31 (12.3)	60.0 (18.1)
	Merchant	30 (11.9)	61.8 (16.4)
	Student	41 (16.3)	66.1 (16.3)
	Housewife	45 (17.9)	61.5 (16.2)
Admission ward	Medical	89 (35.3)	64.9 (14.6)
	Surgical	79 (31.3)	63.4 (17.4)
	Paediatrics	84 (33.3)	63.3 (19.0)
History of admission	Yes	77 (30.6)	68.3 (15.4)
	No	175 (69.4)	61.9 (17.4)
Patients know the nurse in charge of his/her care	Yes	199 (79)	64.8 (17.0)
	No	25 (10)	57.8 (19.2)
	Not sure	28 (11)	62.6 (13.8)

\*US\$1 is 27.44 Ethiopian birr (ETB).

NSNS, Newcastle Satisfaction with Nursing Scale.

care. Patients who have higher educational status were 80% less satisfied compared with those who have no formal education ( $p=0.01$ ,  $OR=0.2$ , 95% CI 0.1 to 0.7). In addition, patients who had a history of admission were 2.2 times more satisfied compared with those who did not have a history of admission ( $p=0.02$ ,  $OR=2.2$ , 95% CI 1.2 to 4.2) (table 3).

## DISCUSSION

This study investigated the level of patient satisfaction with nursing care and its associated factors. Our study showed that 49.2% and 64.7% of admitted patients were satisfied with the nursing care and overall ward service at DBRH, respectively. Educational status and history of admission were significantly associated with patient satisfaction.

The level of patient satisfaction with nursing care in our study (49.2%) was lower than previous studies in Serbia (51.7%),<sup>13</sup> the Philippines (57.8%),<sup>8</sup> Turkey (54.8%),<sup>14</sup> India (73%),<sup>12</sup> Iran (82.8%),<sup>11</sup> Malaysia (82.7%)<sup>6</sup> and Ethiopia (56.9%–81.8%).<sup>16–18</sup> This discrepancy in satisfaction level may be due to the difference in the operationalisation of satisfaction and techniques to determine satisfaction status. We strictly defined patients' satisfaction status using the mean score as a cut point. Usually patients admitted to the medical, surgical and paediatric wards are critically ill, which possibly affects their satisfaction. In addition, the use of a different satisfaction scale may also explain variation in satisfaction levels between the current study and previous studies. For example, the studies in Iran<sup>11</sup> and Malaysia<sup>6</sup> used the 39-item Patient Satisfaction Questionnaire and Self-Report Nursing Care

**Table 2** Patient satisfaction with nursing care at Debre Berhan Referral Hospital

No	Item	Not at all satisfied, n (%)	Barely satisfied, n (%)	Quite satisfied, n (%)	Very satisfied, n (%)	Completely satisfied, n (%)
1	The amount of time nurses spent with patient.	15 (6)	21 (8.3)	110 (43.7)	59 (23.4)	47 (18.7)
2	How capable nurses were at their job.	15 (6)	18 (7.1)	102 (40.5)	77 (30.6)	40 (15.9)
3	There always being a nurse around when needed.	15 (6)	22 (8.7)	104 (41.3)	69 (27.4)	42 (16.7)
4	The amount nurses knew about patient care.	17 (6.7)	30 (11.9)	98 (38.9)	74 (29.4)	33 (13.1)
5	How quickly nurses came when patient called them.	10 (4)	27 (10.7)	112 (44.4)	69 (27.4)	34 (13.5)
6	The way the nurses made patient feel at home.	18 (7.1)	31 (12.3)	103 (40.9)	59 (23.4)	41 (16.3)
7	The amount of information nurses gave to patient about their condition and treatment.	20 (7.9)	50 (19.8)	93 (36.9)	49 (19.4)	40 (15.9)
8	How often nurses checked to see if patients were well.	12 (4.8)	21 (8.3)	102 (40.5)	78 (31.0)	39 (15.5)
9	Nurses' helpfulness.	12 (4.8)	24 (9.5)	103 (40.9)	69 (27.4)	44 (17.5)
10	The way nurses explained things to patient.	16 (6.3)	28 (11.1)	105 (41.7)	68 (27.0)	35 (13.9)
11	How nurses helped put patient relatives' or friends' minds at rest.	18 (7.1)	27 (10.7)	116 (46)	50 (19.8)	41 (16.3)
12	Nurses' manner in going about their work.	13 (5.2)	34 (13.5)	103 (40.9)	54 (21.4)	48 (19)
13	The type of information nurses gave to patient about his/her condition and treatment.	20 (7.9)	38 (15.1)	84 (33.3)	66 (26.2)	44 (17.5)
14	Nurses' treatment of patient as an individual.	14 (5.6)	21 (8.3)	80 (31.7)	46 (18.3)	91 (36.1)
15	How nurses listened to patient worries and concerns.	12 (4.8)	31 (12.3)	91 (36.1)	73 (29)	45 (17.9)
16	The amount of freedom patient was given on the ward.	22 (8.7)	23 (9.1)	95 (37.7)	64 (25.4)	48 (19.0)
17	How willing nurses were to respond to patient requests.	21 (8.3)	27 (10.7)	100 (39.7)	53 (21.0)	51 (20.2)
18	The amount of privacy nurses gave patient.	21 (8.3)	46 (18.3)	76 (30.2)	68 (27.0)	41 (16.3)
19	Nurses' awareness of patient needs.	16 (6.3)	39 (15.5)	88 (34.1)	59 (23.4)	52 (20.6)

Scale, respectively. Furthermore, the characteristics of the samples, hospitals, types of services offered, skill mix of nurses, and cultural beliefs and values could have contributed to these differences.

In agreement with the previous studies,<sup>16 17 47–49</sup> this study revealed that nearly half of patients were satisfied with the amount of time nurses spent with them (43.7%), nurses' quick response (44.4%) and nurses' help to their relatives or friends (46.0%) compared with other dimensions of satisfaction. However, the study conducted in north-west Ethiopia showed 78.3%, 72.4% and 69.7% of patients were satisfied with the amount of time nurses spent with them, nurses' quick response and nurses' help

to their relatives or friends.<sup>17</sup> This discrepancy may be due to high patient flow, availability of hospital resources such as bedscreens and the competency of nurses to implement all aspects of nursing care. Since the nurse to patient ratio in the population is small,<sup>35</sup> the amount of time nurses spent with patients may be less, and the nursing care provided may not be optimal. In addition, high patient flow leads to a shortage of rooms and other resources helpful in providing satisfactory patient care.

In this study, patients who had high educational status were significantly less likely (80%) to be satisfied compared with those who had no formal education ( $p=0.01$ ). This finding is consistent with the study by

**Table 3** Factors influencing patient satisfaction with nursing care

Variables	Categories	Satisfaction status		P values	OR	95% CI
		Satisfied (score $\geq 63.9$ ) n (%)	Not satisfied (score $< 63.9$ ) n (%)			
Age				0.45	1.0	1.0 to 1.03
Sex	Male	60 (47.2)	67 (52.8)	1	1	
	Female	64 (51.2)	61 (48.8)	0.48	0.8	0.4 to 1.5
Religion	Christian	106 (49.1)	110 (50.9)	1	1	
	Muslim	18 (50.0)	18 (50.0)	0.59	1.3	0.5 to 2.9
Monthly family income (ETB)	$\leq 600$	20 (58.8)	14 (41.2)	1	1	
	601–1200	54 (50.0)	54 (50.0)	0.53	1.3	0.6 to 3.1
	1201–2500	37 (41.6)	52 (58.4)	0.14	1.9	0.8 to 4.7
	$\geq 2501$	37 (41.6)	52 (58.4)	0.40	0.6	0.2 to 2.1
Marital status	Single	34 (47.9)	37 (52.1)	1	1	
	Married	78 (50.3)	77 (49.7)	0.41	0.7	0.3 to 1.5
	Others	12 (46.2)	14 (53.8)	0.70	1.2	0.4 to 3.6
Educational status	No formal education	46 (49.5)	47 (50.5)	1	1	
	Primary school	30 (35.7)	54 (64.3)	0.10	1.8	0.9 to 3.7
	Secondary school and preparatory	23 (63.9)	13 (36.1)	0.25	0.5	0.2 to 1.5
	Certificate and above	25 (64.1)	14 (35.9)	0.01*	0.2	0.1 to 0.7
Occupational status	Farmer	47 (44.8)	58 (55.2)	1	1	
	Civil servant	15 (48.4)	16 (51.6)	0.08	2.7	0.9 to 8.3
	Merchant	18 (60.0)	12 (40.0)	0.16	0.5	0.2 to 1.3
	Student	18 (43.9)	23 (56.1)	0.93	0.9	0.4 to 2.5
	Housewife	26 (57.8)	19 (42.2)	0.21	0.6	0.3 to 1.7
Admission ward	Medical	45 (50.6)	44 (49.4)	1	1	
	Surgical	36 (45.6)	43 (54.4)	0.34	1.4	0.7 to 2.7
	Paediatrics	43 (51.2)	41 (48.8)	0.47	1.3	0.6 to 2.6
History of admission	Yes	30 (39.0)	47 (61.0)	0.02*	2.2	1.2 to 4.2
	No	94 (53.7)	81 (46.3)	1	1	
Patients know the nurse in charge of his/her care	Yes	93 (46.7)	106 (53.3)	1	1	
	No	16 (64.0)	9 (36.0)	0.09	0.5	0.2 to 1.2
	Not sure	15 (53.6)	13 (46.4)	0.34	0.6	0.3 to 1.6
Length of stay in ward				0.86	1.0	0.9 to 1.1

ETB, Ethiopian birr.

\*, Statistically significant

Woldeyohanes and colleagues ( $p=0.004$ ),<sup>50</sup> Dzomeku and colleagues ( $p<0.05$ )<sup>51</sup> and Findik and colleagues ( $p=0.03$ ).<sup>52</sup> The possible explanation was that patients who had high educational status may have a variety of expectations and may also be more aware of the standard levels of nursing care, leaving them less satisfied with the care they received. This hypothesis was supported by a previous study in which expectation highly correlated with patient satisfaction.<sup>53</sup> In contrary to Ahmed and colleagues' finding ( $p<0.05$ ),<sup>49</sup> we found that patients who had a history of admission were more than twice as likely to be satisfied compared with those who had no history of

admission ( $p=0.02$ ). This could be related to the previous positive relationship with nurses, good quality of care and affordable service cost that possibly improved their perception of the current nursing care.

This study has several strengths: high response rate, use of a standardised patient satisfaction scale and a reasonably large sample size. However, certain limitations are also acknowledged. Social desirability bias may influence patients' responses, causing them to report more positive experiences so as not to negatively impact their relationships with nurses. Even though a standardised questionnaire was used, it is not validated for use in an Ethiopian

population. Readers should also interpret the results cautiously because the satisfaction scores were dichotomised, which possibly contributes to loss of specificity and power. The sample size calculation did not consider a number of different factors influencing patient satisfaction. In addition, potentially relevant variables such as medical diagnosis, severity and duration of illness, and medication history were not included. Lastly, this study was conducted in one institution, which might limit the external validity of the results.

This study provides evidence on patient satisfaction with nursing care in an Ethiopian context, which can be useful for researchers conducting comparative research on patient satisfaction and related factors. This study also elucidates important factors that can help clinicians and administrators to predict and improve satisfaction in a hospital setting. To increase satisfaction with nursing care, greater emphasis should be given to patient privacy, freedom and communication. In addition, it is relevant to perform periodical community need assessment to identify individuals' expectations and create awareness of hospital services. Even though hospitals have their own nursing care standards, it is important to provide information to patients regarding nursing care and their related expectations, as it has been shown that expectations are of great importance for increasing satisfaction.<sup>2,5</sup> Researchers should also inform hospital administrators and politicians of what the community can expect from care and what demands they can place on it so that this can be made known to the public.<sup>7</sup> Furthermore, to obtain a better estimate of satisfaction with nursing care, it is important to conduct a large-scale study to assess the experience and satisfaction of nursing care in several hospitals using an exit-interview method.

**Acknowledgements** The authors' indepth gratitude goes to Debre Berhan University's Institute of Medicine and Health Science for approval of the study protocol. The authors' recognition also extends to Debre Berhan Referral Hospital officials, Sr Tseganesh Biyabil (Matron Nurse), Dr Feseha Tadesse (Medical Director) and patient advisers (ward nurses) who facilitated patient recruitment and data collection. The authors would like to acknowledge Dr Stephanie Grutzmacher (Oregon State University, USA), who copyedited the manuscript, and Mulugeta Molla (Mekelle University, Ethiopia) and Andreas Teferra (University of Groningen, The Netherlands), who provided intellectual comments during manuscript writing. Lastly, the authors' heartfelt gratitude and high appreciation also go to data collectors (Derese Asfaw, Mandye Nigatu, Seble Kifle and Smegn Tubulu) and the patients who participated in this study.

**Contributors** NTS was involved in supervision during proposal writing, data collection and data entry. HTB was involved in proposal writing, designing the questionnaire, participant selection, data collection and data entry. HKA was involved in supervision during proposal writing, data collection and data entry. TDH was involved in data management, data analysis, and manuscript writing and revision.

**Funding** This research received no specific grant from any funding agency in the public, commercial or not-for-profit sectors.

**Competing interests** None declared.

**Patient consent** Obtained.

**Ethics approval** In order to conform to the Declaration of Helsinki (1964) and Population Screening Act (WBO), ethical clearance was obtained from Debre Berhan University, Institute of Medicine and Health Science Ethical Review Committee. Additionally, written informed consent was received from each patient.

In the paediatric ward, written informed consent was obtained from parents or guardians.

**Provenance and peer review** Not commissioned; externally peer reviewed.

**Data sharing statement** All the data used in this study were included in the main documents.

**Open Access** This is an Open Access article distributed in accordance with the Creative Commons Attribution Non Commercial (CC BY-NC 4.0) license, which permits others to distribute, remix, adapt, build upon this work non-commercially, and license their derivative works on different terms, provided the original work is properly cited and the use is non-commercial. See: <http://creativecommons.org/licenses/by-nc/4.0/>

© Article author(s) (or their employer(s) unless otherwise stated in the text of the article) 2018. All rights reserved. No commercial use is permitted unless otherwise expressly granted.

## REFERENCES

1. Penchansky R, Thomas JW. The concept of access: definition and relationship to consumer satisfaction. *Med Care* 1981;19:127–40.
2. Oliver RL. A conceptual model of service quality and service satisfaction: Compatible goals, different concepts. *Advances in services marketing and management* 1993;2:65–85.
3. Ozsoy SA, Özgür G, Durmaz Akyol A. Patient expectation and satisfaction with nursing care in Turkey: a literature review. *Int Nurs Rev* 2007;54:249–55.
4. Merkouris A, Papathanassoglou ED, Lemonidou C. Evaluation of patient satisfaction with nursing care: quantitative or qualitative approach? *Int J Nurs Stud* 2004;41:355–67.
5. Risser NL. Development of an instrument to measure patient satisfaction with nurses and nursing care in primary care settings. *Nurs Res* 1975;24:45–51.
6. Teng K, Norazliah S. Surgical patients' satisfaction of nursing care at the orthopedic wards in hospital universiti sains malaysia (HUSM). *J Environ Health* 2012;3:36–43.
7. Johansson P, Oléni M, Fridlund B. Patient satisfaction with nursing care in the context of health care: a literature study. *Scand J Caring Sci* 2002;16:337–44.
8. Villarruz-Sulit MVC, Dans AL, Javelosa MAU. Measuring satisfaction with nursing care of patients admitted in the medical wards of the philippine general hospital. *Acta Med Philipp* 2009;43:52–6.
9. Laschinger HS, Hall LM, Pedersen C, et al. A psychometric analysis of the patient satisfaction with nursing care quality questionnaire: an actionable approach to measuring patient satisfaction. *J Nurs Care Qual* 2005;20:220–30.
10. Hughes F. Nurses at the forefront of innovation. *Int Nurs Rev* 2006;53:94–101.
11. Akhtari-Zavare M, Abdullah MY, Abdullah MY, et al. Patient satisfaction: evaluating nursing care for patients hospitalized with cancer in Tehran teaching hospitals, Iran. *Glob J Health Sci* 2010;2:117.
12. Sharma A, Kasar P, Sharma R. Patient satisfaction about hospital services: a study from the outpatient department of tertiary care hospital, jabalpur, madhya pradesh, india. *National J Community Medicine* 2014;5:199–203.
13. Milutinović D, Simin D, Brkić N, et al. The patient satisfaction with nursing care quality: the psychometric study of the Serbian version of PSNCQ questionnaire. *Scand J Caring Sci* 2012;26:598–606.
14. Erci B, Ciftçioglu S. Psychometric evaluation of the primary health-care satisfaction scale in Turkish women. *Int J Qual Health Care* 2010;22:500–6.
15. Tang WM, Soong C, Lim WC. Patient satisfaction with nursing care: a descriptive study using interaction model of client health behavior. *International Journal of Nursing Science* 2013;3:51–6.
16. CHAKA B. Adult patient satisfaction with nursing care. 2005.
17. Negash AK. Patients' satisfaction and associated factors with nursing care services in selected hospitals, Northwest Ethiopia. *American Journal of Nursing Science* 2014;3:34–42.
18. Alemu S. Changes in inpatient satisfaction with nursing care and communication at Debre Markos Hospital, Amhara Region, Ethiopia. *American Journal of Health Research* 2014;2:171–6.
19. Liu Y, Wang G. Inpatient satisfaction with nursing care and factors influencing satisfaction in a teaching hospital in China. *J Nurs Care Qual* 2007;22:266–71.
20. Westaway MS, Rheeder P, Van Zyl DG, et al. Interpersonal and organizational dimensions of patient satisfaction: the moderating effects of health status. *Int J Qual Health Care* 2003;15:337–44.



21. Etter JF, Perneger TV. Validating a satisfaction questionnaire using multiple approaches: a case study. *Soc Sci Med* 1997;45:879–85.
22. Lin HC, Xirasagar S, Laditka JN. Patient perceptions of service quality in group versus solo practice clinics. *Int J Qual Health Care* 2004;16:437–45.
23. Suhonen R, Välimäki M, Leino-Kilpi H. Individualized care, quality of life and satisfaction with nursing care. *J Adv Nurs* 2005;50:283–92.
24. Johansson H, Eklund M. Patients' opinion on what constitutes good psychiatric care. *Scand J Caring Sci* 2003;17:339–46.
25. Richardson S, Casey M, Hider P. Following the patient journey: older persons' experiences of emergency departments and discharge. *Accid Emerg Nurs* 2007;15:134–40.
26. Stoker S, Sayers A. Does the essence of care live up to patient expectations? *Practice Development in Health Care* 2002;1:67–76.
27. Schofield I, Tolson D, Arthur D, et al. An exploration of the caring attributes and perceptions of work place change among gerontological nursing staff in England, Scotland and China (Hong Kong). *Int J Nurs Stud* 2005;42:197–209.
28. Merkouris A, Andreadou A, Athini E, et al. Assessment of patient satisfaction in public hospitals in cyprus: a descriptive study. *Health Science Journal* 2013;7:28–40.
29. Mogadasiyan S, Abdolazadeh F, Rahmani A, et al. Satisfaction with nursing care and related factors in hospitalized cancer patients in shahid ghazi hospital in tabriz. *Journal of Urmia Nursing & Midwifery Faculty* 2013;11.
30. Johannessen G, Eikeland A, Stubberud DG, et al. A descriptive study of patient satisfaction and the structural factors of Norwegian intensive care nursing. *Intensive Crit Care Nurs* 2011;27:281–9.
31. Han CH, Connolly PM, Canham D. Measuring patient satisfaction as an outcome of nursing care at a teaching hospital of southern Taiwan. *J Nurs Care Qual* 2003;18:143–50.
32. Ofovwre CE, Ofili AN. Indices of patient satisfaction in an African population. *Public Health* 2005;119:582–6.
33. Feysia B, Herbst C, Lemma W. The health workforce in ethiopia: Addressing the remaining challenges. *World Bank Publications* 2012.
34. Kinfu Y, Dal Poz MR, Mercer H, et al. The health worker shortage in Africa: are enough physicians and nurses being trained? *Bull World Health Organ* 2009;87:225–30.
35. WHO. Ethiopia: Health workforce. 2018 [http://www.who.int/profiles\\_information/index.php/Ethiopia:Health\\_workforce\\_-\\_The\\_Health\\_System](http://www.who.int/profiles_information/index.php/Ethiopia:Health_workforce_-_The_Health_System) (accessed 23 Feb 2018).
36. Tilahun YG, Nasrabadi A, Alemayehu M, et al. The journey of ethiopian nursing education: a glimpse of past, present and future. *International Journal of Current Research* 2016;8.
37. Chaaya M, Rahal B, Morou G, et al. Implementing patient-centered care in Lebanon. *J Nurs Adm* 2003;33:437–40.
38. Avis M, Bond M, Arthur A. Satisfying solutions? A review of some unresolved issues in the measurement of patient satisfaction. *J Adv Nurs* 1995;22:316–22.
39. Lin CC. Patient satisfaction with nursing care as an outcome variable: dilemmas for nursing evaluation researchers. *J Prof Nurs* 1996;12:207–16.
40. Aynalem Tesfay F, Dejenie Habtewold T. Assessment of prevalence and determinants of occupational exposure to HIV Infection among healthcare workers in selected health institutions in Debre Berhan Town, North Shoa Zone, Amhara Region, Ethiopia, 2014. *AIDS Res Treat* 2014;2014:1–11.
41. The Ethiopian Herald. Ethiopia: Hospital reform improving health care service delivery. <http://allafrica.com/stories/201707100519.html> 2018 (accessed 21 Feb 2018).
42. Kolola T, Gezahegn T. A twenty-four-hour observational study of hand hygiene compliance among health-care workers in Debre Berhan referral hospital, Ethiopia. *Antimicrob Resist Infect Control* 2017;6:109.
43. Thomas LH, McColl E, Priest J, et al. Newcastle satisfaction with nursing scales: an instrument for quality assessments of nursing care. *Qual Health Care* 1996;5:67–72.
44. Piredda M, Vellone E, Piras G, et al. Psychometric evaluation of the newcastle satisfaction with nursing scales. *J Nurs Care Qual* 2015;30:84–92.
45. Iacobucci D, Posavac SS, Kardes FR, et al. Toward a more nuanced understanding of the statistical properties of a median split. *Journal of Consumer Psychology* 2015;25:652–65.
46. von Elm E, Altman DG, Egger M, et al. The Strengthening the Reporting of Observational Studies in Epidemiology (STROBE) statement: guidelines for reporting observational studies. *Prev Med* 2007;45:247–51.
47. Alasad JA, Ahmad MM. Patients' satisfaction with nursing care in Jordan. *Int J Health Care Qual Assur* 2003;16:279–85.
48. Ebrahim SM, Issa SS. Satisfaction with nursing care among patients attending oncology center in Basra city, Iraq. *Journal of Environmental Science and Engineering* 2015:241–8.
49. Ahmed T, Assefa N, Demisie A, et al. Levels of adult patients' satisfaction with nursing care in selected public hospitals in ethiopia. *Int J Health Sci* 2014;8:375–83.
50. Woldeyohanes TR, Woldehaimanot TE, Kerie MW, et al. Perceived patient satisfaction with in-patient services at Jimma University Specialized Hospital, Southwest Ethiopia. *BMC Res Notes* 2015;8:285.
51. Dzomeku V, Ba-Etilayoo A, Perekuu T, et al. In patient satisfaction with nursing care: a case study at kwame nkrumah university of science and technology hospital. *International Journal of Research in Medical and Health Sciences* 2013;2:19–24.
52. Findik UY, Unsar S, Sut N. Patient satisfaction with nursing care and its relationship with patient characteristics. *Nurs Health Sci* 2010;12:162–9.
53. Baron-Epel O, Dushenat M, Friedman N. Evaluation of the consumer model: relationship between patients' expectations, perceptions and satisfaction with care. *Int J Qual Health Care* 2001;13:317–23.